REMARKS/ARGUMENTS

Claims 66-71, 73-75 and 77-86 are active in this case. Claims 84 and 86 have been withdrawn from consideration by the Office and are so indicated in the listing of claims.

Claims 75 and 83 are amended to remove "bone marrow stromal cells" as a mesenchymal cell. Therefore, Applicants now elect chondrocytes as the mesenchymal cell species according to the previous Restriction imposed by the Office. This was discussed during the meeting noted below and it is understood that this change in election is acceptable to the Examiner.

Claim 66 is amended to clarify that the cultured cells are mature, which finds support in the specification on page 7, lines 6-7.

The specification is amended to provide a substitute title as requested.

Formal drawings are being filed herewith to correct the deficiency noted by the Examiner on page 3 of the Office Action.

No new matter is added.

The issue under 37 CFR 1.75 and the rejection of claim 72 under 35 USC 112, second paragraph are not longer applicable in light of the amendments submitted herein.

Applicants thank the Examiner for the courtesy of discussing this case with the Applicants' undersigned representative on March 9, 2006. During this discussion, it was noted that a Declaration of Alan Smith, one of the named inventors of the present application and an author on the Smith et al Abstract cited in the rejection on page 7 would be provided. Following that discussion, a signed Declaration is attached. As attested to by Mr. Smith in his Declaration, authors Gorgas, Jensen, Hatle and Brott were working under the direction and supervision of the named inventors of this application. Therefore, as the Smith et al publication is not a disclosure by another, and Smith et al is part of the basis for the rejection under 35 USC 103(a), Applicants request that this rejection be withdrawn.

As further basis to withdraw the rejection, it should be noted that both US '126 and US '994 relate to the culturing of stem and/or progenitor cells and the cultures are optimized for that purpose. In contrast, the culturing conditions employed in the claimed methods are optimized to obtain mature human cells with enhanced biological function that are then used in therapeutic applications.

Regarding the new matter rejection under 35 USC 112, first paragraph, as outlined in the Office Action and as reiterated during the above-noted meeting, it is the Examiner's position that there is inadequate support for transferring cultured cells to generate issue or for any other therapeutic benefit. For the reasons explained during the meeting and outlined again below, the specification unquestionably supports the claimed methods.

First, it should be noted that the claims, as amended herein, are to providing therapeutic benefit.

The application text describes cell culturing, transferring cells for therapeutic applications (referring to page 21-22 of the specification) and that among others, therapeutic applications include tissue repair (pages 5-6) and the development and regeneration of tissue (referring to page 11, first paragraph of the specification). As discussed in the specification on pages 5-6 of the application, the invention is based on the Inventors' discovery that culturing mature cells in the manner defined in the claims allows one to obtain cells that have significant capabilities in proliferating *ex vivo* and the cells obtained also have higher biological function, i.e., are more potent cells. Because the cells which are cultured according to the conditions claimed are more potent, these cells have a far greater capacity to be used in therapeutic applications wherever such cells are used, including adoptive therapies, wound healing, burn care, organ repair, and others as listed in the specification. There cannot be any dispute about the fact that the specification clearly states that the cultured cells can be

used for therapeutic benefits. In fact, in the section bridging pages 21-22 of the specification, it is specifically stated that the cells, after culturing, are harvested and infused into a patient to provide a therapeutic benefit, including generating tissue (see page 6 of the specification). What more could be disclosed?

In fact, the Examiner has already recognized that the specification discloses the ability to provide therapeutic benefits including tissue generation (non-elected claim) as stated on page 10 of the Action. In the obviousness-type double patenting rejection based on a sister application (which has issued into US patent no. 6,835,566) and therefore has the same specification, the Examiner recognized that "it would be immediately obvious to one skill in the art that the referenced cell with enhanced biological function includes the ability to generate tissue." (page 10, last paragraph of the Office Action).

Assuming the Examiner maintains that a particular phrase, *per se*, is not explicitly recited in the specification, Applicants note that the Board of Patent Appeals and Interferences (BPAI) has overturned a rejection made under 35 U.S.C. § 112, first paragraph where the Examiner rejected claims on the grounds that the claim expressions did not appear in the original disclosure (In re Sorenson 3 USPQ2d 1462 (BPAI 1987)). In this case, the terms "binuclear copper complexes of carboxylic acids", "binuclear copper complex of an aliphatic carboxylic acid" and "a binuclear copper complex of an arylcarboxylic acid" were held not to violate 35 U.S.C. § 112, first paragraph in view of the fact that the specification contained four examples of binuclear cooper complexes of carboxylic acids and one example of a binuclear copper complex of an aliphatic carboxylic acid. "Given those working examples together with a broader disclosure of copper complexes of carboxylic acids, both aliphatic and aromatic, we have no doubt that the Applicants' disclosure *reasonably conveys to the skilled artisan that Appellant had possession of the subject matter now claimed.*" Id. at

1464 (italics added). In dicta the BPAI stated "we are mindful that Appellants' specification need not describe the claimed invention in *ipsis verbus* to comply with a written description requirement" Id. at 1463, and "the test is whether the originally filed specification disclosure *reasonably* conveys to a person having ordinary skill that Applicant had possession of the subject matter later claimed." Id. at 1464 citing to In re Kaslow 217 U.S.P.Q. 1089 (CAFC 1983).

Applicants submit that the decision in Sorenson is relevant to the present rejection in that the specification clearly discusses obtaining more potent cells according to the culturing protocol and using those cells for providing therapeutic benefits to human patients. Therefore, the claims presented in this application do not represent new matter and were described in the original specification in such a way as to reasonably convey to one of ordinary skill in the art that Applicants had possession of the claimed invention. Withdrawal of this rejection is requested.

The last item discussed during the above-noted meeting was the rejection under 35 USC 112, first paragraph based on the allegation that the claims are not enabled. As discussed above in the context of the new matter rejection, the invention is based on the Inventors' discovery that culturing mature cells in the manner defined in the claims allows one to obtain cells that have significant capabilities in proliferating *ex vivo* and the cells obtained also have higher biological function, i.e., are more potent cells (referring to pages 5-6 of the specification). Because the cells which are cultured according to the conditions claimed are more potent, these cells have a far greater capacity to be used in therapeutic applications wherever such cells are used. In other words, there is a body of evidence that is known in the art of using mature cells for therapeutic purposes. The inventors have discovered a way to make these cells better and more potent for such therapeutic applications.

Some examples of such uses of mature cells from the literature are summarized below with PubMed abstracts attached for further reference. While some of these articles were published after the effective filing date of the present application, they demonstrate the effectiveness of the methodologies specifically described in the specification.

A sampling of articles includes:

Mansoor W et al (Br J Cancer. 2005 Nov 14;93(10):1085-91) discusses the uses and benefits of T-cell therapies.

Banchereau J. (Transfus Sci. 1997 Jun;18(2):313-26) discusses the use and benefits of using dendritic cells for therapy.

Irintchev A et al (J Physiol. 1997 May 1;500 (Pt 3):775-85) discusses using primary myoblasts to improve muscle function.

Baums MH et al (J Bone Joint Surg Am. 2006 Feb;88(2):303-8) discusses chondrocyte transplantation for treating cartilage defects.

Baltzer AW, Arnold JP (Arthroscopy. 2005 Feb;21(2):159-66) discusses benefits and approaches for bone and cartilage cell transplantation.

Dorotka R et al (Z Rheumatol. 2004 Oct;63(5):385-92) discusses the success of autologous chondrocyte transplantation in knee and ankle therapeutic applications.

Giannini S et al (Foot Ankle Int. 2001 Jun;22(6):513-7) also describes autologous chondrocyte transplantation in osteochondral lesions of the ankle joint.

Micheli LJ et al (Clin J Sport Med. 2001 Oct;11(4):223-8) describe "excellent graft survivorship using ACI as well as substantial improvement in functional outcome."

Musgrave DS et al (Clin Orthop Relat Res. 2000 Sep;(378):290-305) discusses the potential of different cell types to produce bone tissue.

Chubinskaya S, Kuettner KE. (Int J Biochem Cell Biol. 2003 Sep;35(9):1323-40) reviews the potential of chondrocytes to regulate osteogenesis.

In fact, as discussed above in relation to the new matter rejection, the Examiner has already recognized that recognized that "it would be immediately obvious to one skill in the art that the referenced cell with enhanced biological function includes the ability to generate tissue." (page 10, last paragraph of the Office Action, noting the specification of US patent no. 6,835,566 is identical to the specification of the present application).

In view of the above, Applicants request that this ground of rejection be withdrawn.

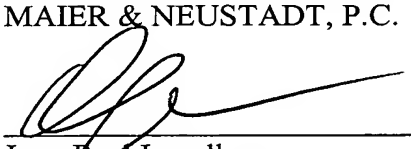
Applicants request that the rejection under the doctrine of obviousness type double patenting in view of co-pending application no. 09/027,671 be held in abeyance since the alleged conflicting claims have not yet been patented (see MPEP § 822.01).

With respect to the same basis of rejection in view of the sister application, now U.S. patent no. 6,835,566, a terminal disclaimer is attached. Withdrawal of the rejection is requested.

Finally, a Notice of Allowance indicating all claims have been allowed is requested.

Respectfully submitted,

OBLON, SPIVAK, McCLELLAND,
MAIER & NEUSTADT, P.C.



Jean-Paul Lavalleye
Attorney of Record
Registration No. 31,451

Daniel J. Pereira, Ph.D.
Registration No. 45,518

Customer Number
22850

Tel: (703) 413-3000
Fax: (703) 413 -2220
(OSMMN 06/04)